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March 29, 1996

BY HAND DELIVERY

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W., Room 222
Washington, D.C. 20554

Re: Ex Parte Presentation
IB Docket No. 95-91
GEN Docket No. 90-357
RM No. 8610
PP-24
PP-86
PP-87

Dear Mr. Caton:

This is to advise that, on March 29, 1996, Joel S. Winnik and K. Michele Walters of Hogan & Hartson L.L.P., accompanied by Richard G. Gould and Professor Laurence B. Milstein (via telephone) and representing Cracker Barrel Old Country Store, Inc., met with the following members of the International Bureau -- Rosalee Chiara, Attorney Advisor, Ronald Repasi, Electronics Engineer, and John Stern, Senior Legal Advisor -- to discuss certain proposals related to the establishment of a satellite-delivered Digital

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Audio Radio Service (DARS), as raised in the Notice of Proposed Rulemaking (released June 15, 1995) in the above-referenced dockets and reflected in the attached slide presentation (dated March 22, 1996).

An original and twelve copies of this letter and enclosure are being filed with your office today.

Sincerely,

Joel S. Winnik by KMW

Joel S. Winnik
Counsel for Cracker Barrel Old Country Store, Inc.

Enclosure

cc: Scott Blake Harris, Chief, International Bureau
Roderick K. Porter, Deputy Chief
Thomas Tycz, Chief, Satellite and Radiotelecommuncation Division
Rosalee Chiara, Attorney Advisor
Ronald Repasi, Electronics Engineer
John Stern, Senior Legal Advisor

CRACKER BARREL PRESENTATION

TO THE FCC INTERNATIONAL BUREAU

MARCH 22, 1996

[and March 29, 1996]

- **More than four operators of 30 CD channels each can be licensed in 50 MHz.**
- **Shunting new applicants to a second processing round would be anti-competitive.**
- **The FCC is permitted to reopen the cut-off period.**

MORE THAN FOUR OPERATORS OF 30 CD CHANNELS EACH CAN BE LICENSED IN 50 MHz

- **Primosphere's latest analysis concedes the accuracy of Professor Milstein's calculation of 6 systems with 30 CD-quality channels in 50 MHz using 1/3 rate coding.**

- **CD Radio has significantly overstated the bandwidth required for a CD-quality channel by assuming the use of a coding rate that is too low.**

- **Use of a higher forward error correction coding rate, such as 1/3 or 1/2, is practical and will allow as many as 8 operators of 30 CD-quality channels in 50 MHz.**

Primosphere's Latest Analysis Concedes The Accuracy Of Professor Milstein's Calculation Of 6 Systems With 30 CD-Quality Channels In 50 MHz Using 1/3 Rate Coding.

- **"There is nothing wrong with Dr. Milstein's calculations." Primosphere Response, February 27, 1996, Richard S. Cooperman, Engineering Analysis, p. 3,**

- **Because he concedes that Professor Milstein is correct, he focuses on certain other matters that are not relevant to Professor Milstein's analysis and his conclusions, claiming that Professor Milstein has ignored the "realities of satellite operation." In fact, Professor Milstein has addressed the pros and cons of using slightly higher-order modulation methods, such as 16 QAM, but has stopped well short of advocating them.**

CD Radio Single CD Channel Bandwidth Assumptions

Compressed minimum information rate:	**128.0 kb/s**
Block Forward Error Correction (RS of 12%):	**143.4 kb/s**
Convolutional Forward Error Correction (1/4 rate):	**573.6 kb/s (transmission rate)**
QPSK Modulation (symbol rate):	**286.8 ks/s**
Transmission Bandwidth (1.2):	**344 kHz**
No. of Operators @ 30 CD channels each:	**4.8 or ~ 5**

- **Key assumption is 1/4 Forward Error Correction Rate, which uses up substantial bandwidth as trade-off for very small power savings.**

Source: CD Radio Comments, Sept. 15, 1996, Appendix B, p. 9.

CD Radio Has Significantly Overstated The Bandwidth Required For A CD-Quality Channel By Assuming The Use Of A Coding Rate That Is Too Low.

- **CD Radio has not shown that the slightly less power required by 1/4 rate coding outweighs the substantial disadvantages of much greater required transmission bandwidth.**

- **Using the 1/4 rate means that fewer operating systems can be accommodated in the 50 MHz allocated bandwidth.**

- **Cracker Barrel demonstrates that the use of practical, modern codecs can operate with higher code rates, require narrower channel bandwidths and lower EIRP and will provide error-free (BER < 10^{-10}) CD-quality transmission.**

Use Of A Higher Forward Error Correction Coding Rate, Such As 1/3 Or 1/2, Is Practical And Will Allow As Many As 8 Operators Of 30 CD-Quality Channels In 50 MHz.

Convolutional Forward Error Correction	1/3 Rate	1/2 Rate
Compressed minimum information rate	128.0 kb/s	128.0 kb/s
	Overhead 10%	Block Forward Error Correction 8.7% and Overhead 10% 1/
QPSK Modulation (symbol rate)	211.3 ks/s	153 ks/s
Transmission Bandwidth (1.3)	274.6 kHz	198.9 kHz
Number of Operators @ 30 CD channels each	6	8

1/ Block encoding (e.g. Reed-Solomon), can further reduce required satellite power, at the expense of only an 8.7% increase in channel bandwidth.

- **Key difference from CD Radio sharing is use of rate 1/3 or rate 1/2 forward error correction, much more bandwidth efficiency, and requirement of only a very small power increase over rate 1/4 coding.**

- **Rate 1/2 is used in satellite broadcasting today.**

Higher Rate Forward Error Correction Coding Rates (e.g., Rate 1/3 Or 1/2)

- **Will result in practical and economic satellite power requirements.**

- **Will reduce system bandwidth.**

Forward Error Correction (FEC) Coding With Rates Of 1/3 And 1/2

- **Will not preclude the use of satellite space diversity.**
- **Will not increase interference to other systems and to other countries.**
- **Will not increase coordination issues.**
- **Will not require ultra-linear transponder operation.**

Conclusion

- **A 1/3 coding rate will allow six independent 30-channel systems in 50 MHz.**

- **A 1/2 coding rate will allow eight independent, block encoded, 30-channel systems in 50 MHz.**

Number of Operators Also Depends on Number of Channels Per Operator Assumed

- **Nine systems could be accommodated in the same 50 MHz if the capacity of each system is reduced only slightly to 27 channels (using 1/2 rate coding and the same practical and economic power levels).**

SHUNTING NEW APPLICANTS TO A SECOND PROCESSING ROUND WOULD BE ANTI-COMPETITIVE

- **The additional competition from operators selected in a second processing round would be delayed pending an auction, assuming mutual exclusivity.**

- **The operators licensed after an auction round would be at a competitive disadvantage to the first round applicants, who would not have to pay for their licenses.**

  - **In DBS, new licenses were auctioned years after the service policy was formulated and original licenses were issued.**

  - **FCC should not <u>start</u> a new field by auctioning some, but not all, of the licenses.**

THE FCC IS PERMITTED TO REOPEN THE CUT-OFF PERIOD

- **Ashbacker stands for the principle that, where there are two mutually-exclusive applications, one can't be granted independently of the other.**
  - **To guard against such situations, the FCC established cut-off procedures.**
- **Ashbacker does not confer other substantive rights on the applicant, such as a guarantee that the cut-off period will not be reopened.**
  - **Indeed, if a cut-off period is reopened, Ashbacker requires that all applications be considered together.**

- **The courts have read into the FCC's cut-off rules certain additional purposes, including:**
  - **Fairness to applicants, allowing them to adequately prepare for comparative hearings.**
  - **Administrative orderliness and finality.**
- **Reopening this cut-off period would not deprive the four existing applicants of the opportunity to know their opposition and prepare their cases, because:**
  - **The FCC can adopt procedures that would allow the current applicants sufficient have to make such preparation; and**
  - **Such preparation is irrelevant, in any event, where auctions or other noncomparative methods of selection are employed.**

- **Reopening the cut-off period enhances administrative orderliness and finality because:**
  - **It permits simultaneous consideration of <u>all</u> applications under the FCC's newly adopted substantive policies; and**
  - **It ensures a more competitive marketplace**
    - **more competitors will be admitted at the same time, and**
    - **all will be admitted on the same basis, perhaps subject to auctions if necessary.**

- **The particular choice of cut-off procedures involves procedural and not substantive rights. An analogous case, Neighborhood TV Co., Inc. v F.C.C., 742 F.2d 629 (1984), clearly demonstrates the procedural nature of changes in cut-off practices and underscores the Commission's flexibility to adjust application processing procedures if warranted by new policy developments. See also Amendment of Rules Governing Use of 2.1 and 2.5 GHz Bands, Second Order on Reconsideration, FCC 95-231, 1995 WL 37051 (rel. June 21, 1995), at ¶¶ 54-55.**

- **The fact that these existing applications were filed, and an original cut-off period established, years before the frequency allocations were made, before the service was defined, and before any basis for mutual exclusivity could even be determined, constitutes the extraordinary circumstances justifying the reopening of the cut-off for satellite-delivered DARS applications.**

  – **In tentatively accepting the applications and applying the cut-off, the FCC made a procedural decision. The FCC could have withheld consideration of these applications until after conclusion of rulemaking. Reopening the cut-off now would be merely a change in procedure, not a diminution of applicants' substantive rights.**